

~~SECRET - NO FOREIGN DISSEM~~

G-MB - 750/64
17 September 1964

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MEMORANDUM FOR: Chief, Defensive Systems Division, OSI
ATTENTION : [REDACTED]
THRU : Chief, RB/RG/CGS
FROM : Chief, CIA/PID (NPIC)
SUBJECT : Soviet "H" Class SSBN Pendant #271, Photo Study
REFERENCE : Requirement No. C-SI4-81,669 (Project No. C 1270-64)

1. In response to Requirement No. C-SI4-81,669 (C 1270-64) requesting comparative data on Soviet "H" Class SSBN's imaged on CIA photographs 874585-586 (USIB 5158323) and CIA 996815-823, a photographic analysis was performed to determine if significant dimensional differences are detectable between pendant numbers 288 and 271.

2. The following information is forwarded in response to the specific items in the requirement:

a. There has been a definite modification of the sail on pendant number 271; the bridge section forward on the sail is higher than is the after missile section of the sail on the same submarine. No noticeable difference could be detected in the height along the entire sail of pendant number 288 on poor quality photography. It cannot be determined whether or not the after part of the conning tower on 271 is either higher or lower than on 288 unless a vertical dimension is known or assumed constant for each submarine. It can only be stated that either the forward portion of the sail has been raised or that the canopy over the missile section has been lowered on submarine 271.

b. The length of the conning tower on 271 relative to its length over-all (LOA) appears to be proportionally longer than is the sail on 288 compared to its LOA. The ratio of sail length to LOA on 271 is approximately 25.1% as compared to approximately 23.0% for the same ratio on 288.

c. The length of the antenna mast from the deck to the base of the whip was determined to be approximately 17.6% of the distance from the aft end of the ship to the conning tower on submarine 271.

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d. The position of the antenna mast forward of the stern was determined to be approximately [REDACTED] of the length over-all of submarine 271.

e. The distance from the after end of submarine 271 to the after end of the sail was determined to be approximately [REDACTED] of the length of the submarine.

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3. The quality of the photography utilized on this project varied from fair to poor. The exact location of the bow on 271 could only be approximated due to poor imagery and wave action.

4. Since no target distance from taking camera is available no dimensions for these submarines can be derived utilizing only camera data and full format photography. Therefore, a dimensional comparison between these two submarines must be predicated upon the assumption that at least one dimension is known or remains constant on each vessel. Forwarded for your consideration is a compilation of dimensional data on submarine 271 utilizing assumed forward sail heights of [REDACTED] respectively. It will be noted that a difference of one foot in this dimension accounts for a difference of [REDACTED] in the LOA of the submarine. Included within the enclosure is an additional tabulation illustrating the effect of target angle (across the plane of the taking camera) upon the length of the target. This angle is also unknown, and for purposes of this study no attempt was made to arbitrarily ascertain its value and to then apply it to the figures already derived from assumed dimensions.

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5. Materials utilized in this analysis were duplicate positives of USIB 5158323 and contact duplicate positives and print enlargements from the original negatives to CIA 996815-823. A proportional mensural analysis utilizing the Mann Comparator was performed by the CIA Technical Intelligence Division/Technical Analysis Branch, (NPIC) on selected contact duplicate positives of pendant 271 including exposure #21 (CIA 996819). All percentages and figures thus derived are approximate. Coordination on this project was performed by [REDACTED] CIA/PID/CIB (NPIC), who may be contacted on ext. 2548 for any additional information.

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6. This memo with enclosure completes the referenced requirement.

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ENCLOSURE:

Mensural Data on Submarine Pendant NR 271

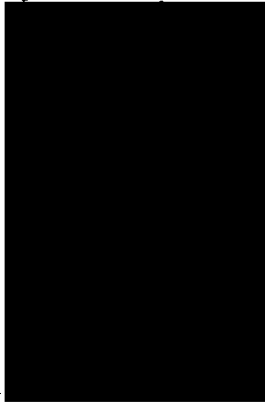
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MENSURAL DATA ON SUBMARINE PENDANT NR 271 USING ASSUMED SAIL HEIGHTS
(NO SPECIFIC TARGET ANGLE ASSUMED)

<u>Dimension</u>	<u>Assumed Height of Forward Section of Sail</u>
Length over-all of submarine	
Length of sail	
Stern to after edge of sail	
Forward edge of sail to bow	
Height of sail from deck to missile canopy	
Length of bow sonar at deckline	
Height of bow sonar	

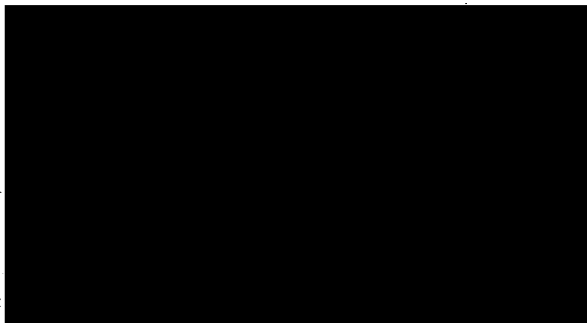
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(All dimensions above were derived from approximate ratios, and no attempt has been made to even out the length dimensions.)

EFFECT OF TARGET ANGLE (SUBMARINE ASPECT RELATIVE TO THE LINE OF
SIGHT OF THE TAKING CAMERA) UPON THE LENGTH OF THE TARGET

Target-(submarine) angle relative to line of sight of taking camera	Percentage of <u>actual</u> target length visible on photograph
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